

Renewable Energy Decisions

Off the grid...

- Independent
- No power outages
- No electric bills
- Expensive BUT Need storage batteries

OR

Interconnected with the grid

- Electric company 'backup'
- Can be 'batteryless' (but then vulnerable to power failures)
- May be paid for excess energy production

DC...

- 12 volt or higher voltage
- More efficient
- 12 volt equipment from RV and boating industry BUT
- Appliances are more expensive -

OR

AC with inverter

- 'conventional' appearance and appliances
- Less efficient

OR BOTH!

Inverter power: modified sine wave or sine wave?

Modified: lower initial cost, easy availability, slightly more efficient, will operate most loads but some sensitive electronics will not work.

Sine Wave: As good as or better than 'grid' power, operates any load, motors run cooler.

Must use sine wave for grid intertie.

What can you power with Renewables?

Easy Loads: efficiency is valuable

- Lighting
- electronics

Bigger loads: efficiency is important

- Motors
- Pumps

Difficult loads: efficiency is critical

- Refrigeration
- Large motors

Essentially impossible (except maybe with micro-hydro)

Resistive heating:

- Space heater
- Electric water heater
- Electric range

Conservation is Key! Every \$ spent on conservation saves \$3-\$5 on system costs!!

- Lighting: change bulbs to compact florescent
- Refrigeration: look for very best efficiency, Appliance choices: look for energy star
- Habits and life style:
 - Turn off lights radios, tv when not in use, don't run extra water
- Look for 'phantom loads' and eliminate

Alternatives for high power needs:

- Heating: wood or gas; boilers can work; avoid electric heaters of any kind
- Cooking : gas; watch for 'glow plug' igniter
- Clothes Drier : gas or clothesline (solar)
- Air Conditioning : fans, shade
- Refrigeration : gas